CLAIMS

What is claimed is:

1.   A method comprising:

identifying a plurality of subgraph structures within a graph structure constructed for a plurality of executable instructions;

identifying a plurality of unifiable variables within each subgraph structure of said plurality of subgraph structures, which are not simultaneously used in said plurality of executable instructions; and

transferring at least one unifiable instruction of said plurality of executable instructions from a tine of a corresponding subgraph structure of said plurality of subgraph structures to a handle of said corresponding subgraph structure, said at least one unifiable instruction containing at least one unifiable variable of said plurality of unifiable variables.

2.   The method according to claim 1, wherein identifying said plurality of unifiable variables further comprises:

constructing an interference graph structure for a plurality of local variables within said each subgraph structure, said plurality of local variables including said plurality of unifiable variables; and

identifying said plurality of unifiable variables as variables having overlapping live ranges within said interference graph structure.

3.   The method according to claim 2, wherein said interference graph

structure indicates which variables of said plurality of local variables are

simultaneously used in said plurality of executable instructions and cannot be

unified.

4.   The method according to claim 1, wherein identifying said plurality of

unifiable variables further comprises:

        constructing a data dependence graph structure for said plurality of

executable instructions; and

        identifying said plurality of unifiable variables using said data

dependence graph structure.

5.   The method according to claim 1, wherein said transferring further

comprises:

        initializing a flag for said at least one unifiable instruction; and

        unifying each unifiable variable within said at least one unifiable

instruction.

6.   The method according to claim 5, wherein said transferring further

comprises:

        removing said at least one unifiable instruction from subsequent tines of

said corresponding subgraph structure.

7.   The method according to claim 4, wherein said data dependence graph structure contains a plurality of dependence arcs, each dependence arc connecting two instructions of said plurality of executable instructions contained within said tine of said corresponding subgraph structure.

8.   A system comprising:

means for identifying a plurality of subgraph structures within a graph structure constructed for a plurality of executable instructions;

means for identifying a plurality of unifiable variables within each subgraph structure of said plurality of subgraph structures, which are not simultaneously used in said plurality of executable instructions; and

means for transferring at least one unifiable instruction of said plurality of executable instructions from a tine of a corresponding subgraph structure of said plurality of subgraph structures to a handle of said corresponding subgraph structure, said at least one unifiable instruction containing at least one unifiable variable of said plurality of unifiable variables.

9.   The system according to claim 8, further comprising:

means for constructing an interference graph structure for a plurality of local variables within said each subgraph structure, said plurality of local variables including said plurality of unifiable variables; and

means for identifying said plurality of unifiable variables as variables having overlapping live ranges within said interference graph structure.

10.   The system according to claim 9, wherein said interference graph

structure indicates which variables of said plurality of local variables are

simultaneously used in said plurality of executable instructions and cannot be

unified.

11.   The system according to claim 8, further comprising:

means for constructing a data dependence graph structure for said

plurality of executable instructions; and

means for identifying said plurality of unifiable variables using said data

dependence graph structure.

12.   The system according to claim 8, further comprising:

means for initializing a flag for said at least one unifiable instruction; and

means for unifying each unifiable variable within said at least one

unifiable instruction.

13.   The system according to claim 12, further comprising:

means for removing said at least one unifiable instruction from

subsequent tines of said corresponding subgraph structure.

14.   The system according to claim 11, wherein said data dependence graph

structure contains a plurality of dependence arcs, each dependence arc

connecting two instructions of said plurality of executable instructions contained within said tine of said corresponding subgraph structure.

15. A computer readable medium containing instructions, which, when executed in a processing system, cause said processing system to perform a method comprising:

identifying a plurality of subgraph structures within a graph structure constructed for a plurality of executable instructions;

identifying a plurality of unifiable variables within each subgraph structure of said plurality of subgraph structures, which are not simultaneously used in said plurality of executable instructions; and

transferring at least one unifiable instruction of said plurality of executable instructions from a tine of a corresponding subgraph structure of said plurality of subgraph structures to a handle of said corresponding subgraph structure, said at least one unifiable instruction containing at least one unifiable variable of said plurality of unifiable variables.

16. The computer readable medium according to claim 15, wherein identifying said plurality of unifiable variables further comprises:

constructing an interference graph structure for a plurality of local variables within said each subgraph structure, said plurality of local variables including said plurality of unifiable variables; and

identifying said plurality of unifiable variables as variables having overlapping live ranges within said interference graph structure.

17. The computer readable medium according to claim 16, wherein said interference graph structure indicates which variables of said plurality of local variables are simultaneously used in said plurality of executable instructions and cannot be unified.

18. The computer readable medium according to claim 15, wherein identifying said plurality of unifiable variables further comprises:

constructing a data dependence graph structure for said plurality of executable instructions; and

identifying said plurality of unifiable variables using said data dependence graph structure.

19. The computer readable medium according to claim 15, wherein said transferring further comprises:

initializing a flag for said at least one unifiable instruction; and

unifying each unifiable variable within said at least one unifiable instruction.

20. The computer readable medium according to claim 19, wherein said transferring further comprises:

removing said at least one unifiable instruction from subsequent tines of said corresponding subgraph structure.

21.   The computer readable medium according to claim 18, wherein said data dependence graph structure contains a plurality of dependence arcs, each dependence arc connecting two instructions of said plurality of executable instructions contained within said tine of said corresponding subgraph structure.

22.   A system comprising:

a memory having stored thereon a plurality of executable instructions to be executed in a program; and

a processor coupled to said memory to identify a plurality of subgraph structures within a graph structure constructed for said plurality of executable instructions; to identify a plurality of unifiable variables within each subgraph structure of said plurality of subgraph structures, which are not simultaneously used in said plurality of executable instructions; and to transfer at least one unifiable instruction of said plurality of executable instructions from a tine of a corresponding subgraph structure of said plurality of subgraph structures to a handle of said corresponding subgraph structure, said at least one unifiable instruction containing at least one unifiable variable of said plurality of unifiable variables.

23. The system according to claim 22, wherein said processor further constructs an interference graph structure for a plurality of local variables within said each subgraph structure, said plurality of local variables including said plurality of unifiable variables and further identifies said plurality of unifiable variables as variables having overlapping live ranges within said interference graph structure.

24. The system according to claim 23, wherein said interference graph structure indicates which variables of said plurality of local variables are simultaneously used in said plurality of executable instructions and cannot be unified.

25. The system according to claim 22, wherein said processor further constructs a data dependence graph structure for said plurality of executable instructions and identifies said plurality of unifiable variables using said data dependence graph structure.

26. The system according to claim 22, wherein said processor further initializes a flag for said at least one unifiable instruction and unifies each unifiable variable within said at least one unifiable instruction.

27.   The system according to claim 26, wherein said processor further removes said at least one unifiable instruction from subsequent tines of said corresponding subgraph structure.

28.   The method according to claim 25, wherein said data dependence graph structure contains a plurality of dependence arcs, each dependence arc connecting two instructions of said plurality of executable instructions contained within said tine of said corresponding subgraph structure.